New York University School of Medicine

Clinical Epidemiology and Validation Center

Objectives

To conduct lung cancer screening of Con Edison utility workers and others with asbestos exposure with spiral CT, epidemiologic evaluation, and genetic and proteomic analysis

Program Description

The NYU Lung Cancer Biomarker Center conducts lung cancer screening of Con Edison utility workers and others with 20 pack−years smoking ± asbestos exposure, with spiral CT scans, induced sputum, respiratory questionnaires, pulmonary function tests, and blood collection. During the first five years of our EDRN funding over 1200 people have completed the survey. On CT scans, 50% had solid nodules, 10% ground−glass opacities, 5% pleural plaques, and 5% fibrosis. Eight lung cancers were diagnosed and an additional 69% had obstructive pulmonary function. The Center has enrolled 111 rule−out lung cancer patients and 60% were diagnosed with adenocarcinomas and identified a unique microarray pattern of lung preneoplasia (atypical adenomatous hyperplasia) with differential expression of Rab and Wnt pathways. In the next five years the Center will:

- Evaluate an additional 1000 smokers, obtain 250 lung cancers, and screen 200 nonsmoking controls.
- Phase II studies will be done on:
    - − K−ras mutations, and DNA repair in lung cancer, adjacent uninvolved tissue, bronchial brush, and PBMCs.
    - Serum S−adenosyl methionine, a methylation intermediate
    - Matrix protein arrays (with Milagen);
    - MR quantification of gel−fusion in lung cancer versus nodules
- Process and store blood specimens; over 20,000 enrollees are under prospective follow−up. Large patient cohorts plus diversity of biomarker phase II studies will result in accelerated translation of feasible lung cancer biomarkers to complement single−breath CT scanning.